



# **NREL Wind Turbine Blade Structural Testing of the Modular Wind Energy MW45 Blade**

**Cooperative Research and Development  
Final Report**

**CRADA Number: CRD-09-354**

NREL Technical Contact: Scott Hughes

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**CRADA Report**  
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CRADA Title:    NREL Wind Turbine Blade Structural Testing of the Modular Wind Energy MW45 Blade

Parties to the Agreement:       Modular Wind Energy

Joint Work Statement Funding Table showing DOE commitment:

Estimated Costs	NREL Shared Resources
Year 1	\$       00.00
Year 2	\$       00.00
Year 3	\$       00.00
TOTALS	\$       00.00

Abstract of CRADA work:

This CRADA was a purely funds-in CRADA with Modular Wind Energy (MWE). MWE had a need to perform full-scale testing of a 45-m wind turbine blade. NREL/NWTC provided the capabilities, facilities, and equipment to test this large-scale MWE wind turbine blade. Full-scale testing is required to demonstrate the ability of the wind turbine blade to withstand static design load cases and demonstrate the fatigue durability. Structural testing is also necessary to meet international blade testing certification requirements. Through this CRADA, MWE would obtain test results necessary for product development and certification, and NREL would benefit by working with an industrial partner to better understand the unique test requirements for wind turbine blades with advanced structural designs.

Summary of Research Results:

Structural tests were performed on the MWE blade by NREL. Testing was done in accordance with the NREL quality management system to provide test results which could be used by MWE for blade certification. NREL is accredited by the American Association of Laboratory Accreditors to perform structural testing to the internationally accepted IEC 61400-23 blade test guidelines. MWE provided the test blade and developed a test specification. NREL developed test plans and quality management system documentation for the test program. MWE and NREL jointly developed the necessary hardware for testing the blade including root adapter plates and load introduction saddles necessary to transfer static and fatigue loads to the test blade. A series of tests were performed on the blade with data and results provided to MWE.

Subject Inventions listing:

No subject inventions were created during this work.

Report Date: March 14, 2012

Responsible Technical Contact at Alliance/NREL: Scott Hughes

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